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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/549,856	06/26/2006	Richard J Harrison	118989-05120057	4777
20583	7550	12/09/2009	EXAMINER	
JONES DAY			CHOI, LING SIU	
222 EAST 41ST ST			ART UNIT	PAPER NUMBER
NEW YORK, NY 10017			1796	
			MAIL DATE	DELIVERY MODE
			12/09/2009	PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

### Office Action Summary

**Application No.**

10/549,856

**Applicant(s)**

HARRISON ET AL.

**Examiner**

Ling-Siu Choi

**Art Unit**

1796

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 14 September 2009.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 33-65 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 33-64 is/are allowed.
- 6) ☒ Claim(s) 65 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/22)
- Paper No(s)/Mail Date \_\_\_\_\_

- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_

**DETAILED ACTION**

1. This Office Action is in response to the Amendment filed 09/14/2009. Claims 1-32 were cancelled and claims 33-65 have been added. Claims 33-65 are now pending.

***Claim Objections***

2. Claims 56 and 64 are objected to because of the following informalities: Claim 56, lines 9-10; Claim 64, line 8, "lanthanum acetate heptahydrate, ytterbium chloride" is suggested to be changed to -- lanthanum acetate heptahydrate; ytterbium chloride--.

Appropriate correction is required.

***Claim Rejections - 35 USC § 112***

3. **The following is a quotation of the second paragraph of 35 U.S.C. 112:**

**The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.**

4. Claim 56 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 56 recites the limitation "the reaction mixture" in line 7. There is insufficient antecedent basis for this limitation in the claim.

***Claim Analysis***

5. Summary of Claim 33:

A <b>method</b> of polymerising ethylenically unsaturated monomers in which at least one ethylenically unsaturated monomer is polymerised using a catalyst system, comprising:	
	a manganese carbonyl radical initiator
	<u>a halogen containing reactive substrate</u>
	<u>an allylic halogen substituted chain termination agent</u>

Summary of Claim 56:

A <b>method</b> of polymerising ethylenically unsaturated monomers in which at least one ethylenically unsaturated monomer is polymerised using a catalyst system, comprising:	
	a manganese carbonyl radical initiator
	<u>a halogen containing reactive substrate</u>
	<u>an allylic halogen substituted chain termination agent</u>
wherein the reaction mixture further comprises a metal containing Lewis acid, comprising magnesium bromide; magnesium chloride; zinc bromide; zinc chloride; zinc trifluoromethanesulfonate; lanthanum acetate; lanthanum acetate heptahydrate, ytterbium chloride; or ytterbium triflate.	

Summary of Claim 57:

A <u>catalyst system</u> for polymerising ethylenically unsaturated monomers, comprising:	
	a manganese carbonyl radical initiator
	<u>a halogen containing reactive substrate</u>
	<u>an allylic halogen substituted chain termination agent</u>

Art Unit: 1796

## Summary of Claim 64:

A <u>catalyst system</u> for polymerising ethylenically unsaturated monomers, comprising:	
	a manganese carbonyl radical initiator;
	<u>a halogen containing reactive substrate;</u>
	<u>an allylic halogen substituted chain termination agent; and</u>
	a metal containing Lewis acid, comprising magnesium bromide; magnesium chloride; zinc bromide; zinc chloride; zinc trifluoromethanesulfonate; lanthanum acetate; lanthanum acetate heptahydrate, ytterbium chloride; or ytterbium triflate.

## Summary of Claim 65:

A <b>polymer or copolymer</b> of one or more ethylenically unsaturated monomers having	
	a residue of a <u>reactive substrate</u> at one end of the (co)polymeric chain and
	a residue of a <u>chain terminating agent</u> at the other

***Claim Rejections - 35 USC § 102***

6. **The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:**

**A person shall be entitled to a patent unless –**

**(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.**

7. Claim 65 is rejected under 35 U.S.C. 102(b) as being anticipated by ICI (GB 1,149,961).

ICI discloses a polymer obtained by a process comprising polymerizing ethylenically unsaturated material in a free radical mechanism, the process comprising contacting the material with a transition metal carbonyl in the presence of a halogenated organic compound [halogen-containing polymer] in the presence of atmospheric oxygen, wherein the halogenated organic compound reads on a halogen containing reactive substrate and the oxygen reads on a chain terminating agent (claims 1, 7-9, and 21). Thus, the present claims are anticipated by the disclosure of ICI.

***Allowable Subject Matter***

8. Claims 33-64 are allowable over the closest references: ICI (GB 1,149,961).

ICI discloses a polymer obtained by a process comprising polymerizing ethylenically unsaturated material in a free radical mechanism, the process comprising contacting the material with a transition metal carbonyl in the presence of a halogenated organic compound [halogen-containing polymer] in the presence of atmospheric oxygen, wherein the halogenated organic compound reads on a halogen containing reactive substrate and the oxygen reads on a chain terminating agent (claims 1, 7-9, and 21). However, ICI does not teach or fairly suggest the claimed catalyst system or the claimed method to polymerize ethylenically unsaturated monomer, wherein the catalyst system comprises, in particular, a manganese carbonyl radical initiator, a halogen containing reactive substrate, and an allylic halogen substituted chain termination agent [or a manganese carbonyl radical initiator, a halogen containing

reactive substrate, an allylic halogen substituted chain termination agent, and a specific metal containing Lewis acid].

In light of the above discussion, it is evident as to why the present claims are patentable over the prior art.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

### ***Conclusion***

9. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ling-Siu Choi whose telephone number is 571-272-1098. The examiner can normally be reached on Monday to Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Wu can be reached on 571-272-1114. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

/Ling-Siu Choi/

Primary Examiner, Art Unit 1796

December 5, 2009



Application/Control Number: 10/549,856  
Art Unit: 1796

Page 8